

CLAIMS

1. A fluidized bed apparatus for batch-by-batch or continuous process control, comprising:

an air inlet chamber, a fluidization region, and a gas outlet,

at least two processing regions (6), each including two gas flow devices in a region between the air inlet chamber and the fluidization region for supplying fluidization means, and each of the processing regions (6) having corresponding pairs of jet inlet walls and jet return flow walls, as well as the side walls, the corresponding pairs of jet inlet walls and the jet return flow walls are inclined relative to vertical such that they each form a cone,

an expanded cross section of the fluidized bed apparatus located above the jet inlet walls and jet return flow walls, where the outlet for outgoing air is arranged,

the processing regions (6) are connected to each other by at least one overflow channel (5) and a first of the processing regions (6) is provided with a solids inlet (13) and a last of the processing regions (6) is provided with a solids outlet (7).

2. Fluidized bed apparatus according to Claim 1, wherein the at least one overflow channel (5) is arranged in adjacent jet return flow walls (2) of processing regions (6) arranged one next to the other and formed by channels or cross-sectional openings.

3. Fluidized bed apparatus according to Claim 1, wherein the individual processing regions (6) are arranged one after the other and/or one next to the other.

4. Fluidized bed apparatus according to Claim 1, wherein sizes of the individual processing regions (6) are different.

5. Fluidized bed apparatus according to Claim 1, wherein the individual processing regions (6) are separated from each other in a region of the air inlet chambers (8) by segmentations (4).

6. Fluidized bed apparatus according to Claim 1, wherein the solids inlet (13) is arranged in a first of the processing regions (6) at an end or at a longitudinal side of the jet return flow wall (2).

7. Fluidized bed apparatus according to Claim 1, wherein the at least one overflow channel (5) comprises separate overflow channels arranged between the individual processing regions (6) so that the material is transported in a meander-like fashion through the individual processing regions (6) of the fluidized bed apparatus.

8. Method for operating a fluidized bed apparatus, comprising:

providing a batch-by-batch or continuous process control for fluidization and heat treatment of essentially randomly shaped particles with arbitrary dimensions as well as masses,

fluidizing the material to be treated in the processing region in a particle flow,

supplying the fluidization means through a controllable gas flow device from below the processing region,

influencing the dwell time by feeding the material to be treated to two processing regions (6) one after the other and passing through these regions,

wherein a material transport direction (F) is in a cross direction relative to a flow of the fluidization means.

9. Method according to Claim 8, wherein a magnitude of a speed of particle flow (15) in each processing region (6) of the fluidized bed that is passed through up to a limiting region equals a transport time of the material to be treated.

10. Method according to Claim 8, wherein different processing conditions can be set in the individual processing regions (6).

11. Method according to Claim 8, wherein processing conditions in the individual processing regions (6) can be set by a configuration and size of the corresponding processing regions (6) and/or by different flow speeds, temperatures, and volume flows of the supplied fluidization means.

12. Method according to Claims 8, further comprising transporting material in a meander-like fashion through the individual processing regions (6) of the fluidized bed apparatus.

13. Fluidized bed apparatus according to Claim 1, wherein the individual processing regions (6) are the same size.